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A Systematic Review of Research on Dissertations in Health Service Psychology Programs

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Completing a dissertation is typically the final step in attaining a doctoral degree in psychology. Health service psychology doctoral programs accredited by the American Psychological Association's (APA) Commission on Accreditation usually require a dissertation as part of students' training in partial fulfillment of APA's competency in research. It should follow that faculty use evidence-based strategies to mentor students through the dissertation process while students search for empirically supported guidance on how to successfully complete this milestone. No review of research on the doctoral dissertation, however, has been conducted. The purpose of this review was to systematically assess research on the psychology doctoral dissertation, particularly in the health service fields of clinical, counseling, and school psychology. A comprehensive literature search focused on the doctoral dissertation in psychology. The search yielded 18 articles that were then sorted into 6 categories: dissertation development in the field, dissertation mentorship, dissertation method, students' dissertation experiences, dissertation authorship credit, and postdissertation research activity. Based on the empirical literature, we provide directions for future research that could help facilitate evidence-based recommendations for the dissertation process.

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Public Significance Statement
Psychology doctoral programs typically require completion of a dissertation, yet there is little empirical support to guide faculty and students in the process. This was the first study to review the existing yet limited research on the psychology dissertation. The results emphasize the need for future research that would support evidence-based recommendations for the dissertation process.

Keywords: dissertation, dissertation research, psychology doctoral training, clinical/counseling/school psychology, research competency

The dissertation is typically one of the final curriculum requirements for a doctoral degree in psychology. Historically, psychology doctoral dissertations followed the scientific method, as in other scientific fields. As the field of clinical psychology developed, programs aimed to integrate science and practice via a scientist-practitioner model (Raimy, 1950). Over time, however, the results of a variety of conferences (e.g., Chicago, Vail) devoted to training model issues pointed to the need for programs primarily devoted to training practitioners (Hoch, Ross, & Winder, 1966; Korman, 1974). Proceedings from these conferences included broadening the types of acceptable dissertation projects students could complete (e.g., hypothesis-forming, evaluation, theoretical). The goal was to ensure this research endeavor was applicable to those who planned future careers in practice. Today, the American Psychological Association (APA) Commission on Accreditation (CoA) accredits health service psychology doctoral programs, defined as programs that integrate science and practice, including clinical, counseling, school, combined, and other areas of practice in psychology (American Psychological Association, Commission on Accreditation [APA CoA], 2015). These programs range from more research-based to more clinically based (Sayette & Norcross, 2018). While individual programs have their own criteria for students completing their dissertations, the APA requires each program to have a method for training and evaluating students in a variety of competencies (APA CoA, 2015).

In 2017, the APA CoA's Standards of Accreditation (SoA) initiated new standards that require students to meet criteria for several competencies, including discipline-specific and profession-wide competency in research (APA CoA, 2015). The discipline-specific knowledge research category includes research methods, statistical analysis, and psychometrics (Commission on Accreditation [CoA, n.d.], IRs C-7 D, Discipline Specific Knowledge). Within the profession-wide research competency, doctoral students are expected to show they can independently develop and conduct rigorous research or scholarly work (e.g., dissertation, critical literature reviews) that is likely to contribute to the field (CoA, n.d., IRs C-8 D, Profession Wide Competencies). They also need to demonstrate the ability to critically evaluate and disseminate research or scholarly work by publishing and presenting. In addition, students need to integrate their competencies in research with those in individual and cultural diversity, assessment, intervention, and ethical standards.

Ethical standards for research and publication are provided in section 8 of the APA Ethical Principles of Psychologists and Code of Conduct (APA, 2010). These standards include guidelines for several aspects of research typically encountered as part of the dissertation process, including obtaining institutional approval and informed consent, providing incentives for participants, avoiding plagiarism, and determining publication credit. The only place dissertations are mentioned is under the section on publication credit (Standard 8.12). Specifically, the code indicates that students should be first author of any paper markedly based on their dissertation, "except under exceptional circumstances." Faculty are urged to discuss authorship with students as early as possible, with ongoing dialogue through the project's progression as necessary. Standards for what constitutes authorship are provided.

The aforementioned APA competencies and ethical standards cover the breadth of possible research projects at different stages of training, however, specific guidelines for this process are not explicitly described, despite the several steps necessary to successfully complete a dissertation. For example, students must determine how to transition from their early research training and experiences to selecting a dissertation topic and supervisor. Students typically vacillate between choosing a topic of general interest and reviewing the literature before they select a specific research question which can inform the type of research method that is appropriate for studying the question. The feasibility of a particular dissertation idea must also be considered, such as the likelihood of recruiting a particular sample and the estimated amount of time the study will take to complete. Students typically present their written dissertation proposal to their dissertation supervisor and committee members who evaluate their work. At the end of the dissertation process, students present the final written dissertation to the committee during their oral defense presentation. They then may consider publishing or presenting their dissertation research at conferences. Many doctoral programs have requirements for students to follow regarding dissertation research methods allowed, as well as timelines and procedures to follow. In addition, published dissertation guides exist to assist students in the dissertation process (e.g., Cone & Foster, 2010); however, empirically based recommendations for successfully navigating the dissertation process is lacking.

Health service psychology doctoral programs have been charged with training students to value the use of empirically supported approaches in their work as researchers and clinicians (SoA CoA, 2015). Therefore, when developing dissertation requirements and procedures, it is imperative to keep in mind empirically supported approaches for developing students' research competency. These include both program-wide and individual faculty member's use of the evidence when mentoring students through the dissertation process. To our knowledge, however, there has been limited research conducted on the dissertation in psychology programs, and a systematic review of this literature has not yet been conducted.

The purpose of this review was to systematically assess research that has focused on the dissertation in health service psychology programs. First, we identified empirical research that has been conducted on the dissertation within psychology. Second, we categorized this literature into various topics regarding the psychology doctoral dissertation. Third, based on the existing empirical literature, we propose directions for future research on the dissertation that could help facilitate evidence-based recommendations for the dissertation process.

Method

To meet inclusion criteria, articles had to include empirical research focused on the psychology doctoral dissertation. Identified studies were excluded if they were (a) actual dissertations; (b) book reviews; (c) book chapters; (d) in a foreign language; (e) focused on students and/or faculty outside of the United States and Canada; (f) related to undergraduate and/or master's level dissertations/theses; (g) about dissertations in fields other than psychology (e.g., STEM, history, social work); (h) articles/reviews solely about specific dissertation topics; (i) about changes in dissertations over a period of less than 10 years; and (j) comments, reviews, or editorials.

Several search strategies were employed to conduct a comprehensive search of the literature. We conducted an initial search for articles focused on the dissertation in an academic database, PsycINFO. We then scanned each study identified by the literature search to generate key words to potentially include in the search. The following terms were used: dissertation progress, dissertation topic, dissertation status, dissertation process, dissertation completion, and dissertation stage. Then, we conducted a search comprised of key terms joined by the word "AND" in the same database. The first term used was "dissertation." The second terms were higher education, advisor roles, advising, faculty, supervision, doctoral student, attrition, research training, professional psychology, procrastination, and authorship. Because these searches yielded articles in health service fields, we reran the term "dissertation" with "clinical psychology," "counseling psychology," and "school psychology." In total, these search terms produced 20 search combinations and 959 hits. This process was then repeated in the PubMed database, and yielded a total of 955 hits. Each combination was searched in both databases through May 2017. A review of each abstract found yielded 241 articles that appeared relevant. These articles were then further reviewed for relevance to the field of psychology and 101 met this criterion, 26 of which were empirical in nature. Reference sections of articles were scanned for any literature that was previously missed. These final articles were then reviewed to ensure they met eligibility criteria, and eight were excluded. Overall, 18 articles resulted from the search. Finally, we searched the term "dissertation" in the online archives of each journal with an eligible article; this final search did not yield any additional relevant articles.

The eligible empirical articles were sorted into the following six categories: dissertation development in the field (e.g., changes in dissertation methodology over time, evolution of relevancy of dissertations to the field), dissertation mentorship (e.g., faculty perspectives, supervisory challenges, production of supervisors), dissertation method (e.g., research methodologies preferred/required), students' dissertation experiences (e.g., attitudes, perspectives, dissertation progress), dissertation authorship credit (e.g., issues in assigning authorship for publication), and postdissertation research activity (e.g., factors that impact research conducted after completion). Categories were created by three of the authors independently and discrepancies were discussed until consensus was reached.

After placing the articles into categories, two of the authors rated each study for its scientific merit by qualitatively judging their confidence in the methodological rigor of the study. A 4-point Likert-type scale was used, with 1 indicating no confidence, 2 indicating little confidence, 3 indicating confidence, and 4 indicating high confidence. No confidence meant that a small sample was used and there was no formal research design or method. Little confidence was defined as having an adequate sample and research design, but the measures used were developed for the purposes of the study with no psychometric properties discussed, or no formal qualitative method mentioned. Confidence indicated that the study contained an adequate sample and research design as well as one of the following: quantitative measures with adequate reliability and/or validity (where measures were used) or a qualitative method including coder consensus. High confidence included all of the same criteria for a rating of 3, as well as a research design that implied causality (e.g., experimental). Rating discrepancies were discussed until consensus was reached.

Results

The 18 eligible articles are presented in Table 1, by category. Out of the six categories, dissertation method and students' dissertation experiences had the largest number of articles ($n = 4$), while the others included 2–3 articles each. In terms of qualitative ratings of confidence, one study was given a rating of 1, eight were given a rating of 2, nine were given a rating of 3, and zero were given a rating of 4. Regarding study samples, three of the studies included dissertations themselves (titles/abstracts) as the "subjects" of the study, six had student participants, six had faculty and/or training directors, one included both students and faculty, and two sampled psychologists. Regarding field, nine studies included participants from the field of clinical psychology, three from school psychology, five from counseling psychology, and five did not specify which field(s) in psychology participants were from. Regarding degree type, six studies were comprised solely of PhD holders, one included only PsyD holders, two included both, and nine did not specify degree. Chronologically, there was a relatively even distribution of articles across decades from the 1970s forward. Specifically, the eligible articles included three from the 1970s, four from the 1980s, five from the 1990s, three from the 2000s, and three from the current decade. In terms of research methods, 12 studies had a descriptive component, 10 had a between-groups component, four included a correlational piece, three used qualitative methods (two consensual qualitative research, one nonspecified), and one was a single group prepost design. Regarding quantitative measures, seven included survey questions developed for the study while three included measures with psychometric data.

Dissertation Development in the Field

The three articles in this category focused on the evolution of issues within dissertations over time. One article published in the

Table 1
Summary of Research Articles Regarding Health Service Psychology Doctoral Dissertations by Topic

Authors, year, title	Sample, design, measure, confidence rating[a]	Purpose	Results
	Dissertation development in the field		
Dent and Ormiston (1973) Areas of doctoral dissertations in clinical psychology: Are the goals being achieved?	N = 256 dissertation titles of students in clinical psychology, evaluated by 43 judges (27 clinical psychology graduate students, 16 faculty members in psychology); descriptive/between-group; categorization of dissertation titles by psychology area reached by interrater agreement **(3)**	To analyze relevance of dissertations to clinical psychology, by different judges from different geographical regions.	More than half of dissertation titles analyzed were judged to be clinical rather than experimental, developmental, personality, social or other areas. Significant differences were found among judges in the ways in which dissertations were classified (e.g., clinical faculty were more likely to judge a dissertation as clinical). Authors attributed this to the biases of faculty members in their individual interests. The largest number of clinical dissertations were in the West, the largest number of experimental dissertations were in the East, and the least number of personality dissertations were in the West.
Keeley, Shemberg, and Zaynor (1988) Dissertation research in clinical psychology: Beyond positivism?	N = 890 dissertation abstracts of doctoral students in PhD programs in clinical psychology in 1965 and 1985; descriptive; categorization of abstracts by research design by two raters **(3)**	To determine the extent to which research training remains tied to the traditional model of psychological science.	There was a small decline in the use of traditional research designs (e.g., experimental, correlational) between 1965 and 1985 (from 97% to 90%) and a small increase in alternative designs (i.e., library, survey, descriptive/interpretive research) among dissertations (from 3% to 10%).
Lewka and Ysseldyke (2010) Dissertation research in school psychology: Changes in topics and methodology over the last 25 years	N = 1,119 dissertation titles and abstracts from school psychology programs in 2000–2007 compared with 710 dissertation titles and abstracts from French and Raykovitz (1984) on 1978–1980; between-group; abstracts categorized by research design using interrater agreement **(3)**	To compare current methods in school psychology dissertations to those found in prior surveys.[b]	The percentage of dissertations including a randomized controlled trial decreased from 41% to 8%. Alternatively, use of single-subject design increased from less than 1% to almost 14%. Descriptive or survey designs also increased, from 9% to 30%, while correlational designs increased from 29% to 38%.
	Dissertation mentorship		
Blanton (1983) Midwifing the dissertation	N = 9 graduate faculty in psychology; no specific qualitative design mentioned; structured interviews **(1)**	To identify problems that arise in faculty's supervision of dissertations and generate prevention and management strategies.	Faculty's main reasons for enjoying the dissertation process were: intellectual and creative purposes; witnessing student development; and contributing to the student, field, or society. The most challenging factors were: interpersonal conflicts, poor quality student work, and faculty time constraints. They identified five phases of the process: planning, beginning, data gathering, writing, and finishing. The planning phase was considered most critical, given the potential for prevention of problems. Participants expressed concern that some faculty primarily in practice do not model the researcher role or convey the seriousness of the dissertation endeavor.
Knox, Burkard, Janecek, Pruitt, Fuller, and Hill (2011) Positive and problematic dissertation experiences: The faculty perspective	N = 14 clinical and counseling psychology faculty in PhD scientist–practitioner doctoral programs; consensual qualitative research; semistructured interview **(3)**	To gain a better understanding of advisors' perspectives on the dissertation process in professional psychology doctoral programs.	Participants felt advisors' roles are to guide the dissertation project and help students with their ideas, while students' roles are to maintain good relationships with their dissertation chair and committee members, be responsible for the project, and complete work independently. In a comparison of positive and negative experiences, positive experiences were categorized by collaboration prior to dissertation research, a good working relationship, and a student feeling competent and motivated, while negative experiences included difficult relationships, difficult student personalities, and low research competence. Negative experiences had a negative emotional impact on advisors.

Table 1 (*continued*)

Authors, year, title	Sample, design, measure, confidence rating[a]	Purpose	Results
Willis and Diebold (1997) Producing mentors in psychology	N = 875 doctoral student graduates in psychology (PhD, EdD, PsyD) from 1970, 1980, 1989–1991, 851 of their mentors; descriptive/between-group; names primarily from dissertation abstracts and membership directories; published ratings of program quality **(3)**	To identify and assess the quality of programs that produce the most dissertation mentors and if the proportion of women among mentors has increased over time.	The 25 programs producing the most mentors produced 60% of the mentors. The programs producing the most dissertation mentors were among the oldest in the U.S. and rated highest in quality. The percentage of women among dissertation mentors increased across time, but not as quickly as the percentage of female doctoral recipients. Professional applied schools had increasing numbers of students yet produced few dissertation mentors.
		Dissertation method	
Galassi, Brooks, Stoltz, and Trexler (1986) Research training environments and student productivity: An exploratory study	N = 41 training directors of counseling psychology programs; descriptive/between-group; survey designed for this study **(2)**	To report on methods used for research training in counseling psychology programs and to understand the relationship between training methods used and later student productivity.	The average program required courses in general research design and statistics. Overall, program directors reported more emphasis on clinical over scientific aspects of training, but would prefer to increase scientific training. All programs approved of experimental designs for dissertation research, 90% of single-subject designs, 89% of assessment design/validation, 76% of quasi-experimental, 70% of qualitative research, and 68% of program evaluations. Forty percent of students in high research productivity programs had presented at professional meetings and 27% had published, while 7% in low research productive programs had presented and 4% had published. High productivity programs involved students in research from early on in their training. Regarding research methodology, high productivity programs were more likely to focus on scientific philosophy, less likely to approve of quasi-experimental dissertations, and included more coursework on qualitative research design.
Ponterotto (2005) Qualitative research training in counseling psychology: A survey of directors of training	N = 60 counseling psychology directors of training; descriptive; questions designed for this study **(2)**	To examine qualitative research training in programs, including required coursework, acceptability of qualitative dissertations, and strong training.	Only 10% of programs required coursework in qualitative research methods, yet related elective courses were almost always available across programs. In addition, 27% of directors indicated that introductory research courses included some qualitative research content. Although 95% of programs accepted qualitative dissertations, relatively few qualitative dissertations were conducted each year (16%). Twelve doctoral programs with strong qualitative research training were identified by two or more directors of training.
Sanchez-Hucles and Cash (1992) The dissertation in professional psychology programs: 1. A survey of clinical directors on requirements and practices	N = 40 Vail-model clinical psychology DCTs; descriptive/correlational; structured interview questions designed for this study **(2)**	To assess dissertation policies and practices in professional, Vail-model clinical psychology programs, including dissertation requirements and types conducted.	Of programs surveyed, 90% required a dissertation, but only 25% required an empirical one. Across programs, traditional empirical research (e.g., experimental and correlational designs) comprised 66% of completed dissertations, while 34% used nonempirical designs (e.g., clinical or theoretical projects, literature reviews, case studies). In addition, 24% of students were "all but the dissertation" (ABD) two years after their anticipated graduation date. ABD rates were not associated with type of dissertation required.

(*table continues*)

Table 1 (*continued*)

Authors, year, title	Sample, design, measure, confidence rating[a]	Purpose	Results
Shemberg, Keeley, and Blum (1989) Attitudes toward traditional and nontraditional dissertation research: Survey of directors of clinical training	$N = 62$ DCTs of clinical psychology PhD programs; descriptive; questionnaire designed for this study **(2)**	To determine faculty attitudes toward research methodologies, including acceptability and value for practicing clinicians.	DCTs reported more support of traditional research methodology for earning a PhD, such as experimental and correlational design (100% and 92%, respectively) than nontraditional methodology, such as library research and case studies (23% and 24%, respectively). Some DCTs reported acceptance of phenomenological and survey methods (58% and 53%, respectively), which held less value than traditional methods, but more than other methods. Participants perceived that their clinical and nonclinical faculty colleagues feel similarly. DCTs also reported feeling that traditional methods produce more valuable research than other methods.
		Students' dissertation experiences	
Burkard, Knox, DeWalt, Fuller, Hill, and Schlosser (2014) Dissertation experiences of doctoral graduates from professional psychology programs	$N = 25$ students from clinical and one from counseling psychology doctoral programs (19, PhD, six PsyD) who graduated in the three years prior to this study; consensual qualitative research/between-group; reliable quantitative measures **(3)**	To understand students' positive and negative dissertation experiences and how they help or hinder dissertation completion.	Participants self-identified as having had a positive or negative dissertation experience. Those with a positive experience typically had supportive relationships with advisors and committee members, which enhanced their confidence and development, while those with negative experiences tended to have difficult relationships with their advisors, including feeling their chair was non-responsive or misused power. They also sometimes had difficult interactions with committee members, and typically sought out support via other means (e.g., friends, family). Those with negative experiences also typically chose topics of interest to them, rather than projects they had previously been involved with in their research labs. Students who had positive experiences had significantly stronger working alliances with their chairs than students who had negative experiences, yet no between-group differences were found for research self-efficacy or research attitudes.
Cash and Sanchez-Hucles (1992) The dissertation in professional psychology programs: 2. Model and evaluation of a preparatory course	$N = 35$ doctoral students in one PsyD clinical psychology program; experimental within-group pre-post; pre- and postcourse questionnaire developed for this study with internal consistency **(3)**	To describe and evaluate a dissertation preparatory course designed to improve students' attitudes toward research and dissertation and facilitate dissertation preparation.	The course increased favorable attitudes among PsyD students in regard to the range of activities involved in conducting a dissertation (e.g., planning, advising, defending). From pre- to postcourse, students demonstrated significant increases in self-reported research knowledge and skill, self-efficacy about the ability to conduct required tasks, and reductions in anxiety about the dissertation process.
Krieshok, Lopez, Somberg, and Cantrell (2000) Dissertation while on internship: Obstacles and predictors of progress	$N = 1025$ interns in applied psychology (70% clinical, 25% counseling, and 5% school); descriptive/correlational; pre- and postinternship unpublished survey developed by the authors, psychometrics not mentioned **(2)**	To describe the interns' dissertation status and progress, as well as obstacles to and predictors of their dissertation progress.	20% of interns started the year with their dissertations complete. Dissertation progress at start of internship was best predicted by prior research productivity and academic research climate. Although 75% of interns who started with incomplete dissertations made some progress over their internship year, students often overestimated the amount of progress they would make. Students who started internship with completed proposals made significantly more dissertation progress than those who had not. The best predictor of dissertation progress over the course of internship was number of hours worked on the dissertation across the year. Other predictors included perceived efficacy to make progress, support from school, and early achievement.

Table 1 (*continued*)

Authors, year, title	Sample, design, measure, confidence rating[a]	Purpose	Results
Muszynski and Akamatsu (1991) Delay in completion of doctoral dissertations in clinical psychology	N = 151 clinical and experimental psychology PhD students and graduates in one university; descriptive/between-group/correlational; psychometrically sound measures, though measures varied in psychometric properties **(3)**	To measure which cognitive and affective factors may cause procrastination in dissertation completion.	Clinical students delayed on dissertation completion had significantly higher procrastination scores. Factors that appeared to help reduce time to completion included a supportive advisor, a topic of interest, making the dissertation a top priority, conducting a laboratory or analogue study rather than a treatment study, and living near the university. Experimental students who were delayed also had significantly higher procrastination scores. Experimental students completed their degree significantly more quickly and lived closer to the university than clinical students, who had significantly higher procrastination scores. Experimental students were also significantly more interested in academia and research, planned more time to work on their dissertations, and felt more comfortable with statistics. Clinical students were significantly more likely to have interest in helping people and conducting research on individual differences.
		Dissertation authorship credit	
Costa and Gatz (1992) Determination of authorship credit in published dissertations	N = 124 faculty, 308 students in psychology PhD programs; descriptive/between-group; vignette-based questionnaire designed for this study, vignettes assessed for content validity **(3)**	To determine how level of input, research objective (i.e., dissertation or non-degree research), and status (i.e., student or faculty) impact authorship credit.	As predicted, a higher level of input to the research led to more attributed authorship credit. When there was a high amount of input, 46% of students and 17% of faculty endorsed first authorship by the advisor. Faculty gave students more credit for published dissertation research than non-degree research. Dissertation advisors typically received second authorship, with more advisor credit assigned across vignettes than recommended by APA Ethics Committee guidelines. Contrary to what was hypothesized, students gave advisors more credit than faculty afforded themselves while faculty gave students more credit than students granted themselves. Senior faculty gave students more credit than junior faculty.
Tryon, Bishop, and Hatfield (2007) Doctoral students' beliefs about authorship credit for dissertations	N = 326 students from school psychology doctoral programs; descriptive/between-group, vignette-based questionnaire designed for this study **(2)**	To investigate doctoral students' beliefs concerning claims of authorship credit for articles based on dissertation research.	Students found it significantly more desirable and ethical for dissertation topics to stem from the student rather than the advisor. They felt that any paper submitted for publication from the dissertation was more desirable and ethical if the student was either the sole or first author, even if the advisor developed the research idea and/or wrote the submitted paper, though these results were not consistently significant. Students who had published articles with faculty generally indicated that these experiences were good, with 72% having discussed authorship with the faculty member and 34% doing so before beginning the research.

(*table continues*)

Table 1 (*continued*)

Authors, year, title	Sample, design, measure, confidence rating[a]	Purpose	Results
		Postdissertation research activity	
Dent and Ormiston (1979) Training, role models, and research activity among clinical psychologists	N = 270 clinical psychologists; between-group; research activity questionnaire designed for this study **(2)**	To determine the contextual variables that have impacted the rates of research activity among psychologists.	Participants with high publication rates were more likely than those with low publication rates to report their dissertation experiences positively impacted their desire to conduct research, and they were more interested in conducting research. Participants with both high and low publication rates reported being most influenced by a clinical over a nonclinical professor; however, those with a high publication rate were more likely to report that the professor with the most influence on them emphasized empirical research more often than clinical expertise.
Porter and Wolfe (1975) Utility of the doctoral dissertation	N = 128 holders of PhD degrees in psychology from 1963–1964 and their citation records; descriptive/ between-group/ correlational; questionnaire developed for this study and citation indexes **(2)**	To determine the scientific merit and usefulness of a sample of dissertations, as well as dissertations' authors' experiences and judgements about potential dissertation alternatives.	Articles developed from dissertation research typically had more scientific merit and were cited more than other research-based articles, yet took longer to write. Continuing research on one's dissertation topic was correlated with more publications and citations. Research-oriented psychologists enjoyed research experiences more than practice-oriented psychologists. Most students found the dissertation process valuable and enjoyable, but particularly those not in academia found it did not train them in specific skills, such as statistics and research design. Supervisory time and access were not related to productivity, though those who entered academia spent significantly more time with their supervisors. The typical dissertation requirement was preferred over proposed alternative formats. Support existed for the development of practice-oriented programs, particularly among those not in academia.

[a] Confidence ratings presented in bold parentheses. 1 = *no confidence*, 2 = *little confidence*, 3 = *confidence*, 4 = *high confidence* (no study rated a 4). [b] This table entry reflects the purpose and results relevant to this review; information beyond the scope of this review was excluded.

1970s assessed the clinical relevance of clinical psychology dissertation titles (n = 256) after the Chicago conference and found the majority could be categorized as clinical (Dent & Ormiston, 1973). Two articles focused on changes in research methods over time. One study of 890 dissertation abstracts found that from 1965 to 1985, there was an increase in alternative research designs such as library (e.g., theoretical, examination of art), survey, and descriptive/interpretive research (e.g., semistructured interviews, phenomenology), and a slight decrease in traditional research designs (experimental, correlational) among clinical psychology programs (Keeley, Shemberg, & Zaynor, 1988). A study of 1119 dissertation titles and abstracts within school psychology compared dissertation methods from 1978–1980 versus 2000–2007 and found a decline in randomized controlled trials, yet increases in single-subject, descriptive, survey, and correlational designs (Lewka & Ysseldyke, 2010). All three articles were given a confidence rating of 3, as they included large samples of dissertation abstracts and/or titles, adequate research designs, and assessed their findings via interrater agreement.

Dissertation Mentorship

This category included three articles on faculty mentorship of doctoral dissertations. Two qualitative studies included interviews of dissertation mentors about their perspectives on the dissertation process, including positive experiences and challenges faced (Blanton, 1983; Knox et al., 2011). Both studies found negative experiences included difficult relationships with students and problems with student work; Blanton (1983), however, was only given a confidence rating of 1 due to interviewing a small sample of faculty (n = 9) with no reported type of qualitative method. On the other hand, Knox et al. (2011) was given a confidence level of 3 for having an adequate sample (n = 14) and a specific research design with coder consensus (i.e., consensual qualitative research). One quantitative study assessed which doctoral programs produced the most dissertation mentors as well as the rated quality of these programs and changes in the proportion of female mentors (Willis & Diebold, 1997). The authors reviewed the names of 875 doctoral student graduates and 851 of their mentors and found that most dissertation mentors were from the oldest, highest quality programs. Program quality was determined by ratings published

across several prior studies using a range of measures. Although the percentage of female supervisors increased over time (1970–1991), this did not occur as quickly as the increase in percentage of female doctoral recipients. Professional applied programs graduated more students yet produced the fewest dissertation mentors. This study received a confidence rating of 3 for its adequate sample and design, for which no measures were necessary. Overall, the studies in this category varied slightly in their purpose, type of research design, and confidence in their scientific merit.

Dissertation Method

The four articles in this category included primarily descriptive surveys of directors of clinical or counseling training programs about types of dissertation methods used by doctoral students in their programs. Three of the articles indicated that traditional empirical designs were the most commonly used or supported dissertation methods (Galassi, Brooks, Stoltz, & Trexler, 1986; Sanchez-Hucles & Cash, 1992; Shemberg, Keeley, & Blum, 1989). Sanchez-Hucles and Cash (1992) surveyed 40 directors of clinical training and found that only about one third of students in Vail-model programs, programs focused primarily on training practitioners, used nonempirical dissertation designs (e.g., clinical or theoretical projects, literature reviews, case studies). The majority used traditional empirical designs (e.g., experimental and correlational). In addition, clinical directors of training ($n = 62$) were least likely to support the use of library research and case studies when compared to other research designs (Shemberg et al., 1989). Among a sample of directors of counseling doctoral programs ($n = 60$), most reported approval of qualitative dissertations, yet only 10% required related coursework and 16% of dissertations were conducted using qualitative methodology (Ponterotto, 2005). Overall, all of the articles in this category received a confidence rating of 2 because they all had adequate samples and research designs; however, they developed questionnaires for their studies without psychometric properties.

Students' Dissertation Experiences

The four articles in this category assessed students' dissertation experiences. A prepost study of 35 PsyD students in one program found a dissertation preparatory course increased students' favorable attitudes, knowledge, skill, and self-efficacy about the dissertation process while reducing anxiety (Cash & Sanchez-Hucles, 1992). Students in a mixed-method study ($n = 25$) reported that positive experiences included supportive relationships with their advisor and committee members, while negative experiences involved difficult faculty relationships and pursuing their own topic as opposed to projects from their labs (Burkard et al., 2014). One predictive study of 1025 interns found that those who proposed before internship made significantly more dissertation progress than others on internship (Krieshok, Lopez, Somberg, & Cantrell, 2000). A primarily correlational study of 151 students identified several instrumental factors, including having a supportive advisor, finding a topic of interest, and prioritizing dissertation work that appeared to reduce time to completion (Muszynski & Akamatsu, 1991). Almost all of the articles in this category obtained a confidence rating of 3 due to having adequate sample sizes and research designs, as well as measures with at least some psychometric data. One study (Krieshok et al., 2000), however, was rated a 2 due to the study's measure lacking psychometric properties, despite having an adequate sample size.

Dissertation Authorship Credit

This category included two articles focused on ethically assigning authorship credit for publications based on dissertation research (Costa & Gatz, 1992; Tryon, Bishop, & Hatfield, 2007). Both studies used vignette-based questionnaires portraying different student-advisor situations and found that students should typically earn the title of first author on publications based on their dissertation research. Results were mixed regarding authorship credit for dissertation advisors. Students ($n = 308$) and faculty ($n = 124$) in one study indicated that higher levels of input should result in greater credit, though students generally afforded their advisors more credit than advisors gave themselves, with almost half of students indicating the advisor could be first author if their input was high (Costa & Gatz, 1992). Students ($n = 326$) in the other study, however, reported that students' sole or first authorship was significantly more desirable and ethical, even if the advisor had contributed a substantial amount (Tryon et al., 2007). Both studies included adequate samples and designs; Costa and Gatz (1992), however, received a confidence rating of 3 for assessing the content validity of the vignettes, while Tryon et al. (2007) obtained a rating of 2 due to not reporting any psychometric assessment of the vignettes.

Postdissertation Research Activity

The two articles in this category were published in the 1970s and focused on the research activities of psychologists ($n = 270$) and psychology doctoral program graduates ($n = 128$), respectively (Dent & Ormiston, 1979; Porter & Wolfe, 1975). In both, alumnae who either published more or were more research-oriented enjoyed their research experiences, including the dissertation, more than those with low publication rates or those more practice-oriented. In addition, those with a high publication rate or who entered academia were either more likely, as students, to have been influenced by professors who prioritized research or spent more time with their supervisors, respectively. Both of the studies in this category received a confidence rating of 2 due to having adequate samples and research designs yet developing questionnaires for their studies with no assessment of psychometrics.

Discussion

The aim of this study was to systematically review literature focused on the dissertation within health service psychology doctoral programs. To our knowledge, this is the first review of empirical research in this area. We found 18 eligible studies, 50% of which we rated as having confidence in their scientific merit, yet none exhibited high confidence. These studies were organized into six categories, including: dissertation development in the field, dissertation mentorship, dissertation method, students' dissertation experiences, authorship credit, and postdissertation research activity. Reviewing the findings pointed to several areas in need of further research which would facilitate the development of evidence-based recommendations for the dissertation process.

Beginning with the earliest article included in our review (Dent & Ormiston, 1973), researchers were interested in examining the relevance of dissertation content and methods to recommendations made in conferences (e.g., Chicago in 1965; Vail in 1973) focused on integrating science and practice elements within psychology (Hoch et al., 1966; Korman, 1974). The increase in alternative research designs and decrease in traditional experimental designs over 20- to 25-year periods reflected recommendations made during such conferences to help reduce the science-practice gap (Keeley et al., 1988; Lewka et al., 2010). Despite diversification in dissertation methods over time, cross-sectional studies on dissertation methods in the late 1980s and early 1990s demonstrated the continued prevalence of traditional methods (Galassi et al., 1986; Sanchez-Hucles & Cash, 1992; Shemberg et al., 1989). For example, traditional empirical designs were the most commonly approved methods by training directors (Galassi et al., 1986; Shemberg et al., 1989). Surprisingly, Sanchez-Hucles and Cash (1992) found that traditional designs were the most commonly used in Vail-model clinical programs in which students are trained as educated consumers of research but the predominant focus is on practice. This article, however, is more than 25 years old and may not reflect current dissertation models used in such programs. Novel, nonempirically based dissertation models have been suggested more recently (Maxwell & Kupczyk-Romanczuk, 2009; Yorks, 2008).

Given the lack of research examining dissertation methods used in the last decade, as well as the types of research questions practitioners would likely best address with alternative research designs (Keeley et al., 1988), it would be useful to determine if traditional research methods continue to dominate the field, or if there is now a noticeable difference between dissertation research methods in more research oriented versus more clinically oriented programs (e.g., Ph.D. vs. PsyD). The SoA indicates that while all health service programs contain core competencies, including research, programs differ in their balance of the competencies, based on training goals and possible career paths (APA CoA, 2015, pp. 13–14). PsyD students aiming to be practitioners, for example, might benefit from learning how to construct research designs that are relevant to problems encountered in practice, encouraging them to help reduce the science-practice gap by conducting research as local clinical scientists (Stricker & Trierweiler, 2006). In addition, required course content likely influences the types of dissertation methods students are comfortable using. For example, programs that lack qualitative coursework may produce fewer qualitative dissertations than programs that incorporate it into their curriculums (Ponterotto, 2005). Examining the methods taught in research courses across programs would help clarify whether students are learning to execute research using diverse methods.

Beyond teaching research methods in the classroom, faculty are influential in the dissertation process as mentors. Only two studies examined the dissertation process from the faculty perspective (Blanton, 1983; Knox et al., 2011). These studies illustrate the great value that faculty members place on positive student-advisor relationships, a perspective that mirrors those of students describing positive dissertation experiences (Burkard et al., 2014). Muszynski and Akamatsu (1991) also found that having a supportive advisor was related to time to completion, emphasizing the need to determine factors that influence positive faculty-student advising relationships. Theoretical frameworks for mentoring doctoral student research have been delineated but not assessed (Brown, Daly, & Leong, 2009; Spillett & Moisiewicz, 2004). Further exploration of ways the dissertation advisory relationship impacts the dissertation experience and later outcomes is warranted, from both student and faculty perspectives (Burkard et al., 2014; Knox et al., 2011; Muszynski & Akamatsu, 1991).

The fact that pursuing a topic of interest reduced time to completion (Muszynski & Akamatsu, 1991) while choosing a topic unrelated to faculty research was related to negative experiences (Burkard et al., 2014) suggests the need for finding a balance between a topic a student is passionate about that is also within their faculty's expertise. Dissertation guides and articles provide advice about selecting a topic (Cone & Foster, 2010; Ségol, 2014), however, they have no empirical support. Future research should continue to examine topic selection and its impact on students' dissertation experiences, time to completion, and early career success. Programs could also systematically assess the quality of students' literature reviews, which should be designed to place a student's topic within the context of existing research and build the rationale for their study (Boote & Beile, 2005).

One article in our review assessed the impact of a dissertation preparatory course that included issues such as topic, advisor, committee selection, dissertation politics and procedures, dissertation writing, and research methods (Cash & Sanchez-Hucles, 1992). Further evaluation of prerequisites to the dissertation process (e.g., courses, workshops, research assistantships) would assist programs in tailoring their curricula to best prepare their students for optimal outcomes (Cash & Sanchez-Hucles, 1992). Given that procrastination is significantly more common in students whose dissertations are delayed, it would also be useful to examine if interventions and incentives earlier on in doctoral training would help students move along, both before and during internship (Krieshok et al., 2000; Muszynski & Akamatsu, 1991). Students have reported finding dissertation support groups helpful (Inman & Silverstein, 2003; Pauley, 2004). Recently, the Chicago School of Professional Psychology developed a doctoral dissertation support center (Glazek, Adu, & McFeeters, 2018). Initial program evaluation indicated that students reported improvements in areas such as synthesizing literature, developing research questions, writing more clearly, and selecting methodology. Future, well-controlled research would help determine the efficacy of dissertation courses, support groups and centers.

Results from the articles on authorship credit for publishing dissertation research (Costa & Gatz, 1992; Tryon et al., 2007) generally adhered to APA's (2010) ethical guidelines indicating dissertation students should receive first authorship "except under exceptional circumstances" (Standard 8.12). Other studies that were ineligible for this review but assessed authorship assignment for dissertation research using vignettes also indicated that the student should be sole or first author (Bartle, Fink, & Hayes, 2000; Spiegel & Keith-Speigel, 1970). Similar to Costa and Gatz (1992), studies have indicated that faculty authorship should be based on the amount faculty contribute to the dissertation research (Rose & Fischer, 1998; Spiegel & Keith-Speigel, 1970). Although Tryon et al. (2007) showed that students found it more acceptable to be first author regardless of who was responsible for topic generation and writing, Bartle et al. (2000) found that topic development and writing were important factors in determining author order. Inevitably, faculty can significantly contribute to dissertation research,

possibly even more than the student (Goodyear, Crego, & Johnston, 1992). The research reviewed was vignette-based; although to their credit, Costa and Gatz (1992) demonstrated content validity for their vignettes, future research should examine published dissertations to determine the percentage with student first authors and interview alumni about their experiences assigning authorship credit. Future research should also compare perspectives on assigning authorship credit from those in research-oriented as compared to practice-oriented programs (Tryon et al., 2007). Faculty in the former may expect more independent dissertation development and anticipate the student being first author. Given the importance of obtaining first-authored articles for academic positions, research-oriented students may also desire first authorship more than practice-oriented students.

To our knowledge, only two studies have focused on postdissertation research activity in relation to the dissertation (Dent & Ormiston, 1979; Porter & Wolfe, 1975). It was not surprising to find associations between highly published alumni with research-oriented careers and positive perspectives of the dissertation experience. Unfortunately, we did not find more recent articles on postgraduation research. Future research conducted should aim to understand how factors related to the dissertation experience impact students' career trajectory, including early career choices, postdissertation research activity, and extent of publication (Burkard et al., 2014). Five years after graduation, the SoA requires doctoral programs to provide information on licensure as well as research and scholarly contributions (APA CoA p. 15), and this data could be used to further explore the relationship between dissertation factors and postgraduation outcomes.

Limitations of This Review

Although our eligibility criteria were heavily deliberated, some studies excluded due to judged irrelevance may have included relevant data which limits the generalizability of our review. For example, we excluded studies with international samples (outside of Canada) to stay within the context of APA accredited doctoral programs. We also excluded studies with masters' level students to stay focused on doctoral level research; however, these articles often included information that could help determine how to improve the dissertation experience, such as how to assign authorship credit (Bartle et al., 2000; Rose & Fischer, 1998). One article appeared to assess dissertations' relevance to the field, yet was excluded for its focus on specific dissertation topics (Ysseldyke & Pickholtz, 1975). Despite the subjectivity of including and categorizing articles, decisions reached consensus among three of our authors.

Recommendations for Future Research

Overall, the 18 articles found in our review appear to contribute to an initial body of research on dissertations; however, the number of outdated articles and limited research in each category points to a dearth of inquiry in this area. This is puzzling, considering the dissertation is typically the final requirement for receipt of the psychology doctoral degree. The lack of research on the dissertation may be due to a lack of interest among researchers and doctoral students in studying a topic that is nonclinical and may not appear relevant to grant funding or future employment. Research related to the dissertation is likely of most interest to doctoral program administrators or those involved in national training organizations. Regardless of the reasons for the lack of research on the dissertation, dissertation supervision itself is paradoxical in that decades of mentorship have passed with limited evidence supporting the efficacy of the dissertation process for training doctoral students.

Before developing a program of research addressing the dissertation, it seems necessary to reflect on the inherent assumption that the dissertation itself is valuable, though there is little research on its impact in training. As a field, we expect students to understand the importance of making empirically supported decisions, and therefore it appears logical that a research project, where a student experiences firsthand the development and execution of a scientific or scholarly process, is required as the capstone to doctoral work. We therefore suggest that this assumption be put into question to allow research to emerge that may or may not support its utility.

Based on our review, several overarching research questions about the dissertation process remain. First, we encourage descriptive research on current aspects of the dissertation process across doctoral programs, including the types of research methods students learn and use for dissertations and information about dissertation-related program offerings (e.g., dissertation courses or seminars, dissertation support groups, writing centers or mentors, dissertation handbooks, and dissertation guidelines and timelines). Second, we recommend assessing relations between factors associated with the dissertation experience (e.g., early research experiences, prerequisite courses, topic selection, methodology used, program requirements, early proposal completion, mentoring experiences, internship support) and proximal and distal outcomes (e.g., research satisfaction, dissertation performance, quality of the completed dissertation, timely completion, publication, career success). These experiences could also be explored qualitatively by interviewing students, alumni, and faculty. Third, we suggest evaluating the efficacy of dissertation courses, support groups, and writing centers. Fourth, we propose evaluating if specific dissertation components (e.g., literature review, data analysis) can be used to measure students' research competency in line with the CoA (n.d.). Finally, we recommend examining similarities and differences in the aforementioned areas across doctoral degrees and specialty areas (e.g., Ph.D. vs. PsyD, clinical vs. counseling vs. school). Researching these areas would help facilitate the development of evidence-based guidelines regarding the dissertation process for students and those who conduct their training.

Future research on the dissertation process should include methodologically rigorous designs as well as measures with stronger psychometric properties, as the research found in our review lacked high confidence (i.e., a rating of 4). Descriptive research with study-specific questionnaires can provide insight into questions such as the type of dissertation methods being used, and qualitative research can help us understand faculty and student perspectives and experiences. Experimental designs, however, examining the efficacy of dissertation preparatory courses and support groups on student outcomes as well as prospective, longitudinal cohort studies designed to determine factors such as early career success would help move this area of research forward. In addition, conducting more research with reliable and valid measures could help determine how various factors related to conducting dissertation research (e.g., research self-efficacy, perceptions of research training environments, research interests; Bieschke, Bishop, & Garcia, 1996; Lambie & Vaccaro, 2011) impact

student/early career success or highlight areas for intervention during the dissertation process.

We had hoped to use the existing body of research to propose evidence-based recommendations for navigating the dissertation process; however, given the limited research in this area, it appears premature to do so. Based on initial empirical support from articles in our review that demonstrated confidence (i.e., a rating of 3), we offer tentative recommendations for students, faculty, and health service psychology doctoral programs. Recommendations for students include: become involved in research with faculty early, preferably with a topic that could be used for dissertation (Burkard et al., 2014; Knox et al., 2011); choose a topic that is of interest or an extension of prior work (Burkard et al., 2014); and prevent conflicts by discussing expectations with dissertation mentors (Burkard et al., 2014). Recommendations for faculty include: receive training on how to mentor dissertation students (Knox et al., 2011); discuss authorship early and be clear about roles and expectations (Knox et al., 2011); and balance specific feedback with support (Burkard et al., 2014). Recommendations for psychology doctoral programs include: provide training for dissertation supervisors (Burkard et al., 2014); assign mentors to students who have similar research interests early on (Knox et al., 2011); provide coursework related to the dissertation process (Cash & Sanchez-Hucles, 1992; Knox et al., 2011; Muszynski & Akamatsu, 1991); offer training on research models that reduce the research-practice gap (Keeley et al., 1988); encourage students to choose a research model that reflects their research question (Sanchez-Hucles & Cash, 1992); run support groups for students (Muszynski & Akamatsu, 1991); provide reinforcement to increase progress (Muszynski & Akamatsu, 1991); and offer assistance when advisor/student relationships are difficult (Burkard et al., 2014). These recommendations are promising, yet require further empirical support.

Beyond researching the dissertation process, research competency must be addressed across all accredited doctoral programs (APA CoA, 2015). Given the SoA's focus on profession-wide and discipline-specific research competencies, the next step appears to be empirically testing methods for evaluating research competencies (Self, 2017). Behavioral anchors designed to assess specific competency benchmarks across developmental levels have been proposed, including for scientific knowledge and methods and research/evaluation (Competency Benchmarks in Professional Psychology, n.d.; Fouad et al., 2009; Kaslow et al., 2009). For example, a student deemed ready for internship could demonstrate scientific mindedness via a critical evaluation of literature (Fouad et al., 2009). To our knowledge, however, no studies have focused on assessing methods for the specific evaluation of research competencies. A recent grants program encouraged psychometric evaluation of methods for assessing existing competencies, which points to the field's infancy in this area (Self, 2017). Once research on the efficacy of competency assessment methods has been conducted, it will be useful to determine if students' research competency should be assessed differently depending on their stage of training or degree type (PhD vs. PsyD). For example, the National Council of Schools of Professional Psychology, which focuses on practice-oriented programs, has guidelines across three stages of training regarding research and evaluation competency, including the ability to conduct and use research in applied settings (Kenkel & Peterson, 2010). These guidelines, however, do not specify the dissertation as the means for evaluating research competency.

An important next step for the health services psychology field will be to assess if the dissertation can serve as a vehicle for measuring the new research competencies (CoA, n.d.). Although these competencies are described broadly, the latest APA benchmarks for scientific knowledge and methods and research/evaluation can be aligned with specific dissertation requirements (Competency Benchmarks in Professional Psychology, n.d.). For example, the benchmarks indicate students are ready for entry to practice if they can use appropriate methods for the research question. Competencies specific to the dissertation can then be assessed via a rubric for each major component, such as the literature review, data analysis, written dissertation, and oral defense (Boote & Beile, 2005). Aligning the dissertation with the benchmarks would help us determine the value of the dissertation for evaluating students' research competency. This would likely generate interest in further research on the dissertation, which hopefully would lead to evidence-based dissertation recommendations for health service psychology doctoral students and those who conduct their training.

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